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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,867	08/06/2003	Susumu Kashiwase	848075-0053	8336

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SCHULTE ROTH & ZABEL LLP
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EXAMINER

NGO, NGUYEN HOANG

ART UNIT	PAPER NUMBER
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2616

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/635,867

Applicant(s)

KASHIWASE, SUSUMU

Examiner

Nguyen Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 3, 6, 7, 8, 18, 24, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation of said allocation information applying means allocates said allocation information with respect to said first wireless communication terminal from one direction of said array, and also allocates said allocation information to said wireless communication terminal from the other direction of said array. Examiner however fails to see such teaching from the specification and drawings. Applicant is encouraged to specifically point such limitation.

Regarding claim 6, 7, 8, 18, 24, it is not clear what is exactly meant by the limitation "communication terminals in the packet communications every said carrier" (claim 6 line 8). Applicant is encouraged to clarify such limitation.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 4, 5-11, 16-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gitlin et al. (US 6018528), in view of Koorapaty et al. (US6631124), hereinafter referred to as Gitlin and Koorapaty.

Regarding claim 1, 16, Gitlin discloses a communication system comprising:

a first wireless communication terminal (low-speed users D, K, N, P, R, S, T of figure 5) for performing a packet communication (communications transmission medium, column2 lines 58-60) with respect to said base station by using one carrier (low-speed users will be permitted to fill one or more of the available time slots 44 in a frame (one carrier), column 4 lines 88-23 and 50 of figure 5); and

a second wireless communication terminal (high speed users B, G, L of figure 5) for performing a packet communication with respect to said base station by using a plurality of carriers at the same time (higher-speed users can fill one or more of the available frequency bands 42 (plurality of carriers) or time slots 44, col4 lines 20-23),

Gitlin however fails to specifically disclose the specific limitation of a base station and its specific components. However a system comprising a base station is well known in the art. Koorapaty discloses of such a system comprising a base station (320 of figure 3) and said base station comprises: allocation information applying means (resource allocator) for applying allocation information which is commonly used for said plurality of carriers when the carriers are allocated to either said first wireless communication terminal or said second wireless communication terminal; and allocation information storage means for storing therein said allocation information (resource allocator 312 is operative to assign time slots, spreading codes, coding rates, and bandwidth to terminals communicating with the base station 320, col5 lines 49-62 and figure 3). It would thus be obvious to a person skilled in the art at the time the invention was made to incorporate the concept of optimizing spectral efficiency using time-frequency code slicing as disclosed by Gitlin into the system comprising a base station and its resource allocator as disclosed by Koorapaty in order to send data between base stations and user terminals in an efficient manner.

Regarding claim 5, 9, 17, 19, 21, the combination of Gitlin and Koorapaty, more specifically Gitlin discloses a wireless communication system as claimed in claim 1 wherein said packet communication is carried out by using a variable length packet (figure 4).

Regarding claim 6, 7, 10, 11, 18, 20, the combination of Gitlin and Koorapaty, more specifically Gitlin discloses a communication system as claimed in claim 1, further time slot allocating means for allocating time slots which are used in packet communications by said first and second wireless communication terminals (as seen in figure 5), the time slot allocating means allocates one wireless communication terminal among said first and second wireless communication terminals to one unit of a time slot distribution used by said first (low-speed users D, K, N, P, R, S, T being allocated one time slot as seen in figure 5) and second wireless communication terminals in the packet communications every said carrier (high-speed user G being allocated to time slots across frequency bands f_0 to f_6 of figure 5). Gitlin further discloses allocation of first wireless communication terminal and second wireless communication terminal be in an independent manner (independent transmissions, col8 lines 24-30).

Regarding claim 8, the combination of Gitlin and Koorapaty fails to specifically disclose allocating said first wireless communication terminal and said second wireless

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communication terminal in an alternate manner. However this would have been obvious to a person skilled in the art to alternate allocations between users, as this is simply a network parameter that may be chosen by the network/administrator.

Regarding claim 4, the combination of Gitlin and Koorapaty fails to specifically disclose having said allocation information storage means store the allocation information allocated to said wireless communication terminal as separate arrays. However it would have been obvious to a person skilled in the art to have the allocation information stored as arrays as it is well known that resource allocating information for mobile terminals be stored in memory of a base station. It should be noted that an array is a form of memory storage.

Regarding claim 22, Gitlin discloses a wireless communication terminal for communicating with a base station apparatus which performs a packet communication with respect to both a wireless communication terminal for executing a packet communication by employing one carrier (low-speed users D, K, N, P, R, S, T of figure 5) and also another wireless communication terminal for executing a packet communication by employing a plurality of carriers (high speed users B, G, L of figure 5) at the same time (col4 lines 14-20) wherein said wireless communication terminal judges a destination of a communication packet transmitted from said base station based upon said allocation information contained in a header of said transmitted packet so as to be communicated with said

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base station (col2 lines 35-41 and figure 4). It should be noted that it is well known in the art that destination addresses are allocated in a header of a packet for communication between source and destination.

Gitlin however fails to specifically disclose the specific limitation of a base station and it's specific components. However a system comprising a base station is well known in the art. Koorapaty discloses of such a system comprising a base station (320 of figure 3) and said base station comprises: allocation information applying means (resource allocator) for applying allocation information which is commonly used for said plurality of carriers when the carriers are allocated to either said first wireless communication terminal or said second wireless communication terminal; and allocation information storage means for storing therein said allocation information (resource allocator 312 is operative to assign time slots, spreading codes, coding rates, and bandwidth to terminals communicating with the base station 320, col5 lines 49-62 and figure 3). It would thus be obvious to a person skilled in the art at the time the invention was made to incorporate the concept of optimizing spectral efficiency using time-frequency code slicing as disclosed by Gitlin into the system comprising a base station and it's resource allocator as disclosed by Koorapaty in order to send data between base stations and user terminals in a efficient manner.

Regarding claim 23, 25, and 27, the combination of Gitlin and Koorapaty, more specifically Gitlin discloses a wireless communication system as claimed in claim 1

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wherein said packet communication is carried out by using a variable length packet (figure 4).

Regarding claim 24, 26 Gitlin discloses a wireless communication terminal for communicating with a base station apparatus which performs a packet communication with respect to both a wireless communication terminal for executing a packet communication by employing one carrier (low-speed users D, K, N, P, R, S, T of figure 5) and also another wireless communication terminal for executing a packet communication by employing a plurality of carriers (high speed users B, G, L of figure 5) at the same time (col4 lines 14-20)

time slot allocating means for allocating time slots which are used in packet communications by said first and second wireless communication terminals (as seen in figure 5), the time slot allocating means allocates one wireless communication terminal among said first and second wireless communication terminals to one unit of a time slot distribution used by said first (low-speed users D, K, N, P, R, S, T being allocated one time slot as seen in figure 5) and second wireless communication terminals in the packet communications every said carrier (high-speed user G being allocated to time slots across frequency bands f_0 to f_6 of figure 5).

wherein said wireless communication terminal judges a destination of a communication packet transmitted from said base station based upon said allocation

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information contained in a header of said transmitted packet so as to be communicated with said base station (col2 lines 35-41 and figure 4). It should be noted that it is well known in the art that destination addresses are allocated in a header of a packet for communication between source and destination.

Gitlin however fails to specifically disclose the specific limitation of a base station and it's specific components. However a system comprising a base station is well known in the art. Koorapaty discloses of such a system comprising a base station (320 of figure 3) and said base station comprises: allocation information applying means (resource allocator) for applying allocation information which is commonly used for said plurality of carriers when the carriers are allocated to either said first wireless communication terminal or said second wireless communication terminal; and allocation information storage means for storing thereinto said allocation information (resource allocator 312 is operative to assign time slots, spreading codes, coding rates, and bandwidth to terminals communicating with the base station 320, col5 lines 49-62 and figure 3). It would thus be obvious to a person skilled in the art at the time the invention was made to incorporate the concept of optimizing spectral efficiency using time-frequency code slicing as disclosed by Gitlin into the system comprising a base station and it's resource allocator as disclosed by Koorapaty in order to send data between base stations and user terminals in a efficient manner.

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6. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gitlin et al. (US 6018528), in view of Koorapaty et al. (US6631124), in further view of Krishnamoorthy et al. (US 2002/0051424), hereinafter referred to as Gitlin, Koorapaty, and Krishnamoorthy.

Regarding claim 12-15, the combination of Gitlin and Koorapaty fails to specifically disclose having the time slot distribution determining means determine the time slot distributions which can be used by said first wireless communication terminal and said second wireless communication terminal based upon a comparison result. Koorapaty however discloses that a system assigns an entire time slot to a terminal conditioned upon the performance requirement and reception condition (col9 lines 40-45).

Krishnamoorthy however discloses a method for assigning time slots to a user based upon user's data rate requirement, the actual data rate, and quality of service contracted for by the user. Krishnamoorthy further discloses that the assignment of the time slots within the frame is made dynamically (abstract and page 1 [0004]). It would have thus been obvious to a person skilled in the art at the time the invention was made to incorporate the concept of determining the time slot distributions which can be used by a user as disclosed by Krishnamoorthy, into the method of optimizing spectral efficiency using time-frequency code slicing as disclosed by Gitlin and Koorapaty in order to efficiently determine the allocation of time slots to different users.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Wu et al. (US2003/0058881), Data Streaming Method And Apparatus Using Adaptive Transmission Scheduling.

b) Yano et al. (US 6563806), Base Station For Multi-Carrier TDMA Mobile Communication System And Method for Assigning Communication Channels.

c) Wang et al. (US 6826160), Dynamic Bandwidth Allocation Through Multi-Channel Time Slot Assignment And Migration For Broadband Access

d) Terry et al. (US 6973064), Method And Apparatus For Minimizing The Amount Of Data Necessary To Signal Code and Timeslot Assignments.

e) Long et al. (US 5640385), Method And Apparatus For Simultaneous Wideband And Narrowband Wireless Communications.

f) Lehman et al. (US 6282184), Common Digitizing Rate For Multiple Air Interfaces For Generic Cell Sites In Cellular Radio.

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g) Kasapi et al. (US 20030064753), System And Related Methods For Beamforming In A Multi-Point Communications Environment.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen Ngo whose telephone number is (571) 272-8398. The examiner can normally be reached on Monday-Friday 7am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

N.N.

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